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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/668,798
Filing Date: September 23, 2003
Appellant(s): LEE, SOON HO

Eric S. Hyman, Reg. No. 30,139
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 01 December 2005 appealing from the Office action mailed 29 June 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,739,774	Olandesi	4-1998
6,006,159	Schmier et al.	12-1999
JP 54082584 A	Fujimoto	6-1979
6,803,862	O'Conner et al.	10-2004

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olandesi (US Patent 5,739,774) in view of Schmier et al. (Schmier; US Patent 6,006,159) and further in view of Fujimoto (Japanese Patent JP354082584A).

Regarding claim 1, Olandesi discloses *Mass Transit Monitoring And Control System* that has the following claimed subject matters:

The claimed step of at one of the roadside base stations which are installed at side of roadway between the bus stops, receiving an on-board device ID from the on-board device in a bus, when the bus equipping the on-board device passes the roadside base station without stopping is met by the stop units collecting and disseminating information related to vehicle arrivals at the respective passenger stops (column 2, lines 29-56, column 4, lines 24-32, column 8, lines 56-59 and column 10, lines 35-51). The vehicles are not required to stop at the stop units to exchange the required information and it also would have been obvious that the stop units could be placed at any point along the roadway, whether at the passenger stops or between them, the functionality would have stayed the same because the distance between the stop units would still have to be known to compute the timeliness of the system;

The claimed step of at the roadside base station, transmitting traffic information including the on-board device ID, a roadside base station ID and a pass time to the bus information server is met by the information that is transmitted between the stop units and the vehicle units including a vehicle ID number (column 10, lines 35-51), a stop number (column 8, lines 56-59) and the actual arrival time of the vehicles at the stop units (column 4, lines 24-32);

The claimed step of at the bus information server, computing a traffic speed of each section between the roadside base stations using the traffic information is met by the computing means calculating the timeliness of the system and sending information

to the vehicle units, through the stop units, that includes the arrival time of vehicles at respective stops (column 2, lines 29-56 and column 4, lines 24-32). The timeliness of the vehicles in the system (which would be considered traffic on the road) would include the speed of the traffic along the route because the distance between units would have to be known and the system of Olandesi is measuring time required to travel that distance which is the definition of speed (distance over time);

The claimed step of at the bus information server, transmitting the computed time required for arriving at each of the next bus stops from the corresponding roadside base station is met by the computing means calculating the timeliness of the system and sending that information to the stop units to send to the vehicle units (column 2, lines 24-32);

The claimed step of at the roadside base station, transmitting the computed time required for arriving at each of the next bus stops to the on-board device when the roadside base station receives the on-board device ID is met by the stop units sending information including the timeliness of the vehicle along the route and any needed schedule adjustments (column 4, lines 24-32). It would have been obvious to wait until the stop station receives a vehicle ID number before sending the information in order to only send the information to authorized vehicles along the route;

However, Olandesi does not specifically disclose the claimed step of at the bus information server, computing an average traffic speed of each section between the roadside base stations using the computed traffic speed of each section and the step of at the bus information server, computing time required for arriving at next bus stops

from the roadside base station based on the computed average traffic speed of each section. Fujimoto discloses *Bus Operation Control System* that teaches a centralized processing system that uses the speed of busses passing ground receivers along the bus route to compute an average speed that is used to compute the time required for the bus to arrive at the next stop station (constitution). Olandesi discloses computing the timeliness of the system at the central server but does not specifically disclose how the computation is done. Modifying Olandesi to use the average speed of the busses (and hence the traffic along the route since the busses are driving along with traffic and can be considered traffic themselves) would be a simple way to compute the time required to arrive at the next bus stations. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Olandesi according to the teachings of Fujimoto to compute an average traffic speed of each section between stop stations using the computed traffic speed of each section and using that computed average traffic speed to compute the required time to arrive at the next stop stations.

However, Olandesi still does not specifically disclose the claimed step of at the on-board device announcing the expected arrival time of each of the next bus stops based on the computed time required for arriving through an output device. Schmier discloses *Public Transit Vehicle Arrival Information System* that teaches a display device in a bus that displays the estimated time of arrival at bus stops on the bus route to passengers of the bus (col11 36-55). The device of Olandesi only displays information for the upcoming (next) bus stop. Modifying the device of Olandesi to show

not only the expected arrival time at the next bus stop but further stops along the bus route would give passengers a better idea of when they can expect to arrive at their destination. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Olandesi according to the teachings of Schmier to display the expected arrival time of the bus at each stop along it's route.

Regarding claim 4, Olandesi, Fujimoto and Schmier disclose all of the claimed limitations. The claimed method wherein the bus information server, the roadside base station and the on-board device determine a bus course based on the on-board device group ID is met by the information that is being exchanged between the stop units and vehicle including the vehicle identification, a predefined stop number assigned to each passenger stop and route numbers (col4 24-32, col8 56-59 and col10 35-51).

Regarding claim 5, Olandesi, Fujimoto and Schmier disclose all of the claimed limitations. The claimed method wherein the bus stops are major bus stops is inherent in the device disclosed by Olandesi and Schmier as they do not discriminate between major and non-major bus stops in the transit systems that are serviced.

Regarding claim 11, Olandesi, Fujimoto disclose all of the claimed limitations except for the claimed step of the bus information server storing the computed traffic speed of each section to a section speed_DB. Schmier teaches the importance of

having the location and average speed of vehicles in the system between various points in the system (column 2, lines 49-54) and storing that information in tables in the central server so that it can be easily transferred to the vehicles in the system (column 4, lines 5-60). Storing the calculated average traffic speed in tables in the central server would allow for quick access and storage of a large amount of information and also allow for easy transfer of that information to other sources. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Olandesi and Fujimoto according to the teachings of Schmier to store the computed traffic speed of each section to a section speed_DB.

Regarding claim 12, the claim is interpreted and rejected as claim 11 stated above. The claimed step of updating the average traffic speed of each section based on the computed traffic speed of each section previously stored in the section speed_DB is the definition of how to compute the average value of a group of values.

3. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Olandesi in view of Schmier further in view of Fujimoto and further in view of O'Connor et al. (O'Connor; US Patent 6,803,862).

Regarding claim 13, Olandesi, Schmier and Fujimoto disclose all of the claimed limitations except for the claimed method including the steps of reading a bus stop_DB stored in the bus information server as a form of a table containing a bus stop list

according to bus courses passing the roadside base station; computing the time required for arriving at each of the bus stops based on the table of the bus stop_DB; and storing the computed time for arriving at each of the bus stops in a requirement time_DB as a form of a table. O'Connor discloses *Communication System* that teaches a transit system with a centralized server that receives and transmits information regarding the vehicles along the transit routes in the system that includes a database which stores bus resource, bus route, bus timetable and messaging data (column 3, lines 42-48). Olandesi, Schmier and Fujimoto disclose a centralized server that calculates the timeliness of the system using stop units passing time and average speed of the vehicles in the system. Modifying the device of Olandesi, Schmier and Fujimoto to utilize a database to store all of this information would be beneficial because storing all of the information in a database allows for easy transmission and modification to said information. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the device disclosed by Olandesi, Schmier and Fujimoto according to the teachings of O'Connor to store the transit system information in a database and access the database information when computing new values for the timeliness of the system.

Regarding claim 14, Olandesi, Schmier, Fujimoto and O'Connor disclose all of the claimed limitations. The claimed step of the bus information server transmitting the table of the requirement time_DB and an on-board device group ID to the corresponding roadside base station is met by the central server transmitting the system timeliness

status to the stop units to be transferred to the vehicle units (Olandesi: column 2, lines 24-32).

(10) Response to Argument

4. Applicant's arguments filed in appeal brief dated 01 December 2005 have been fully considered but they are not persuasive. Applicant makes the following arguments:

Argument A, applicant argues that Fujimoto does not disclose how the average passing speeds are obtained and does not use computed average speed and that Fujimoto does not disclose the two-step process of computing a computed traffic speed of the bus and then computing an average traffic speed between the roadside base stations next.

Argument B, applicant argues that neither Olandesi nor Fujimoto teaches or suggests the roadsides base stations being "installed at side of roadway between the bus stops."

Argument C, applicant argues that Olandesi does not disclose an on-board device group ID as claimed.

Argument D, applicant argues that Schmier does not disclose the claimed "bus information server stores the computed traffic speed of each section to a section speed_DB."

Argument E, applicant argues that none of the references disclose "the bus information server updating the average traffic speed of each section based on the computed traffic speed of each section previously stored in the section speed_DB."

Argument F, applicant argues that O'Conner does not disclose the claimed "reading of a bus stop_DB stored in the bus information server as a form of a table containing a bus stop list according to bus courses passing the roadside base station; computing the time required for arriving at each of the bus stops based on the table of the bus stop_DB; and storing the computed time for arriving at each of the bus stops in a requirement time_DB as a form of a table."

Argument G, applicant argues that the mention of "system timeliness status" would not have led one of ordinary skill in the art to the claimed "table of the requirement time_DB" and the "on-board device group ID."

Responses:

Regarding argument A, Fujimoto discloses a system that finds the average speed of a passing bus based on information from roadside receivers and it stores in memory the estimated hourly speed ahead of the bus (Detailed Explanation of Invention). This system clearly computes the traffic speed between two receivers, Fujimoto calls it an "average speed" because it is an average of the speed between the two receivers. The system also determines the estimated hourly speed ahead of the bus, and therefore it would have been obvious to one of ordinary skill in the art to use the "average speed" of busses passing through the section ahead of the bus previously to calculate an average speed to provide the function of providing future estimated arrival times as disclosed by Fujimoto.

Regarding argument B, the information exchange between the stop units and vehicle units of Olandesi occurs when the "vehicle moves within the immediate vicinity of a respective stop unit" (column 3, lines 54-67) and there is no mention of the vehicle unit having to stop in order to exchange the information. As is also commonly known busses do not always stop at the passenger drop-off/pick-up stations when no one wants to get off at that particular station and there are no passengers waiting to be picked up so the vehicles of Olandesi would not have to stop at the passenger drop-off and pickup stops. Examiner also contends that it would have been obvious to place the stop units at any place along the bus route as long as their relative distance was known in order to calculate the speed of the vehicle along the route.

Regarding argument C, Olandesi discloses a data transmission format that includes a vehicle ID number to indicate the vehicle the information is related to, a schedule adjustment value and other related information (column 10, lines 35-51). Olandesi also discloses that skilled persons will appreciate the number of other possible formats that may be employed to provide for the transmission of information to one or more stop units (column 10, lines 35-51). It would have been obvious that some identifier would have to be used to identify the next stop along the bus route in order to accomplish the function of providing the arrival time to the next stop as disclosed by Olandesi (column 2, lines 29-56) and Schmier (column 11, lines 36-55).

Regarding argument D, Schmier teaches the importance of having the location and average speed of vehicles in the system between various points in the system (column 2, lines 49-54) and storing that information in tables in the central server so that it can be easily transferred to the vehicles in the system (column 4, lines 5-60). Simply because it is not labeled a section speed_DB does not make it patently distinct.

Regarding argument E, Schmier teaches the importance of having the location and average speed of vehicles in the system between various points in the system (column 2, lines 49-54) and storing that information in tables in the central server so that it can be easily transferred to the vehicles in the system (column 4, lines 5-60). The process of updating the average traffic speed of each section based on the computed

traffic speed of each section previously stored in the section speed_DB is the definition of how to compute the average value of a group of values.

Regarding argument F, O'Connor discloses *Communication System* that teaches a transit system with a centralized server that receives and transmits information regarding the vehicles along the transit routes in the system that includes a database which stores bus resource, bus route, bus timetable and messaging data (column 3, lines 42-48). Clearly O'Conner teaches storing all of the information of the system in a database structure for processing and transmission of that data to the roadside stations and vehicle units. Simply because the sections are not named the same does not make them patently distinct.

Regarding argument G, the on-board device group ID is discussed in regards to argument C stated above. As is discussed in regards to argument F stated above, O'Conner teaches storing all of the bus system information in a database including bus timetable information which would be used to provide the function of providing system timeliness status to the roadside stations and vehicle units. Simply because the sections are not named the same does not make them patently distinct.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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